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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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COUNTRY	USSR (Magadan Oblast)	REPORT	
SUBJECT	Kanon Concentration Factory No. 41	DATE DISTR.	25 April 1955 25X1
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1. The Kanon Concentration Factory No. 41 (Obegatitelnaya Fabrika No. 41, Kanon) was located 42 km northwest of Lazo (N 63-13, E 152-10).¹ The factory was built about 1945 and was near the third factory in Lazo, a cassiterite concentration plant. There was a constant rivalry between these two plants, but the Kanon factory always got the premiums. The Kanon factory was part of the Upper Seymchan Ore Mining Combine (Verkhnyy seymchanskiy gorno-rudnyy kombinat-VSGRK).
2. The electric power came via Lazo from Elgen Ugol (N 62-54, E 151-46), which was about 40 km southwest of Kanon. The power came into the factory on two separate lines: the one for the electric motors carried 370 volts, the one for the lighting system carried 220 volts. Water was furnished by a pumping station outside the factory. The factory was heated by steam from the boiler shop on the factory grounds. The shop had two boilers, heated by wood, which had a pressure of six atmospheres each. In early May, every year, a period of 15 days was set aside for general repair (kapitalnyy remont). For the electric power station at Elgen Ugol, repairs lasted two or three days.
3. In winter, frequent power failures affected the production. One power interruption lasted three days, and the power was frequently off for about two minutes every 15 minutes. The power failure caused a great deal of trouble, because the classifiers would overflow and the pumps could not work. Water ran all over

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the floor of the factory and had to be pumped away by a special installation (see page 5, point 23).

4. The concentration process was one in which the ore, first reduced in the crusher, passed successively through the ball mills, classifiers, and flotation units. (See pages 4-5 and attachment for flow chart and detailed description of the process.) The ore was crushed finer and finer as it went through the units. Some concentrate was taken off in the first flotation process, and the rest of the mixture was pumped back for a second run through the various units. The final stage was reached in the filter unit from which the concentrate was taken out of the main building to a drying unit. The main building of the factory was on a slope, so that the ore and water mixture flowed down freely through pipes and was sent back when necessary by various pumping installations.
5. After the concentrate was dried, it was packed in 50-kg bags and shipped by truck to Seymchan; from there it was shipped by plane to Magadan. In winter, the concentrate was flown from Magadan to the Urals. From May to September, it was sent from Magadan by ship to Vladivostok and from there by train. Source did not know the name of the city in the Urals where the ore was sent.
6. The three ore processing mills in the main factory building were powered by electric engines of American make, one 400 hp and two 300 hp each. The engines worked on a current of 370 volts. The smaller motors used for the flotation units were of unidentified Soviet manufacture. The steel balls for the mills weighed 500 gr, 1, 2, and 3 kg. For one ton of ore, four to five kg of steel balls were added. For three shifts of eight hours each, the norm called for 3,000 to 4,000 kg of balls, but workers often added more to speed up the process.
7. In 1952, the three mills of the cobalt factory processed 200 tons of ore in one eight-hour shift. The capacity was greater, but there was insufficient ore available. In 1952, the factory often worked only half time, one hour out of two. The big mill could process 20 tons of ore in an hour, the other two 12 to 14 tons each. One and one-half tons of concentrate were obtained from 200 tons of ore. The concentrate contained impurities and filings from the balls. On the average, 100 kg of concentrate contained seven to ten kg of cobaltine. One hundred and fifty to 160 kg of pure cobaltine were obtained per eight-hour shift.
8. The head of the combine was Chief Engineer Filatov (fnu) [redacted] 25X1
[redacted] The head of the factory was a woman, 25X1
Shokholovskaya (fnu) [redacted]
[redacted] both engineers were members of Dalstroy.
9. Approximately 150 men worked in the factory. In the main building and the units connected with it, there were six brigades per 12-hour shift, a total of about 80 men. Three brigades of about 14 men each worked on the concentration process, on the mills, classifiers, flotation units, and filter unit. One brigade worked in the Technical Control Section (OTK). These men took samples of the concentrate from the selector and from the drier, weighed the concentrate, and prepared the chemical elements to be added in the flotation process. There was one brigade of electricians and locksmiths who worked in the electrical shop (elektro-tsakh), and one brigade which worked on the drier unit (sushilka). There were three brigades working outside the immediate vicinity of the main building. One of these, composed of 20 people, worked in the sorting unit, taking out the rocks which contained little ore. A second brigade of ten men worked on the crusher (drobilka). A third brigade worked in the mechanical shop (mekh-tsakh); these men were pipe-fitters, mechanics, welders, and lathe operators (tokar). Finally, there was one brigade assigned to the boiler shop and the pumps, twelve men in the boiler shop, some of them preparing the wood, and four men at the pumps (masos).

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10. Factory workers were paid less than miners. After the usual deductions made at the camp, they got from 200 to 300 rubles (sic).²

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11. In the camp, the prisoners were summoned according to their type of work and taken in convoy under soldier and dog escort to their place of work. The prisoners did not have passes, but had prisoner numbers on their clothing. The whole factory area was surrounded by a barbed wire fence and had watchtowers. In summer, there were dog patrols around the fence. The dogs were tied to an overhead wire and could run for about 50 m.

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Annotations to Sketch Map of Kanon Cobalt Concentration Factory, No. 41
Layout and Flow Chart (see Attachment)

The chart represents the Kanon cobalt processing factory with various details given in the insets as follows:

- A. Kanon factory - Scale: 1 inch = 2 meters
- B. Grinding mill detail - Scale: 1 inch = 2 meters
- C. Flotation unit - Scale: 3 inches = 1 meter
- D. Classifier unit - Scale: 1 inch = 1 meter
- E. Filter unit - Scale: 2 inches = 1.20 meters

A. Factory

- 1. Entrance to factory building.
- 2. Steam pipes running throughout the factory for heating.
- 3. Bunkers into which ore is dropped by conveyor belt coming from crusher. The crusher takes pieces of ore up to 25 cm and reduces them to 8 mm size; larger pieces are broken by hammer.
- 3b. Selector (razdelka): Samples of the ore can be dropped into this box by pressing a rod inside bunker. The samples are taken to laboratory for analysis.
- 4. Mills (M, M1, and M2): The ore is sent over a short conveyor belt to the mills and into a box where a spiral conveyor (ulitka) pushes it on into the mill cylinders (see Inset B). Inside the cylinder the ore bounces against small sections of metal (fortinovka) which come in two shapes and are bolted to the sides. The ore is ground down to about .04 mm and looks like sand.
- 5. Classifiers (K, K1, and K2): From the mill the ore passes into the classifiers in which there are a series of wheels (see Inset D) which grind the ore further.
- 6. Tanks (S): The ore then passes into large tanks which are equipped with an electro-dynamo (7) which turns the tank. This is the first stage of the flotation process.
- 7. Electro-dynamic.
- 8. Flotation units: From the tank the ore goes through successive flotation units (8a, b, c, and d; see Inset C). Each flotation unit has one or two propellers which churn the mixture of ore and chemicals which are added to it at this stage from unit No. 16. The additions to the ore consist of the following: powdered glass (zhitkoye steklo: sic); "santat"; sodium oxide (solisi-natr); black oil (maslo). The addition of chemicals causes some of the concentrate to rise to the surface in the form of froth. The froth is whipped into a trough (shelob) (17b) by a special device (penagon) or froth chaser (17a). Flotation 8d is a control unit which extracts some concentrate missed in the other three.

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9. Pump (P1): After the flotation process, the concentrate which has not been extracted goes via pump P1 (9) to the central vat G (10).
10. Central vat (G).
11. Flotation unit: From the central vat (10) the concentrate goes through a pipe to a special control flotation unit (11).
12. Control unit: The mixture flows from the flotation unit (11) through another control unit (12). Some of the mixture drips into a pail attached to it. The pail is filled in about two hours and taken to the laboratory for analysis of content.
13. Dump: The mixture flows out through a pipe and gathers on a pile outside the building. Samples are also taken from this waste for further laboratory examination.
14. Screen: Located under the classifier (5). Material caught on the screen is called drainage (slivka) and is sent to a central pumping unit P (15) where there are three pumps which send the mixture once more to Vat G (10).
15. Pumping unit (P).
16. Regulator unit: Contains chemicals added to the flotation unit (8).
- 17a. Froth chaser (penagen).
- 17b. Troughs (H, H1, H2, H3, and H4): Wooden receptacle under each flotation unit, from which the froth is taken to a large vat (18).
18. Vat (G1): The concentrate is taken from here by a pump (19) and sent to the filter (20).
19. Suction pump (P2).
20. Filter (F) (see Inset E): The filter consists of two wheels on which canvas bags are mounted. They are blown open by a compressor unit (21) and the metal which had first adhered to the sacks falls into small tanks which send it into a car (22). To help in removing the metal from the sack cloth, a man with two flat spades stands by and scrapes the sacks as they are blown open.
21. Compressor unit (C).
22. Car which takes the concentrate to the drying unit outside the main building. The concentrate is dried on heated metal sheets and then loaded into 50-kg bags.
23. Pump for cleaning factory of overflow.

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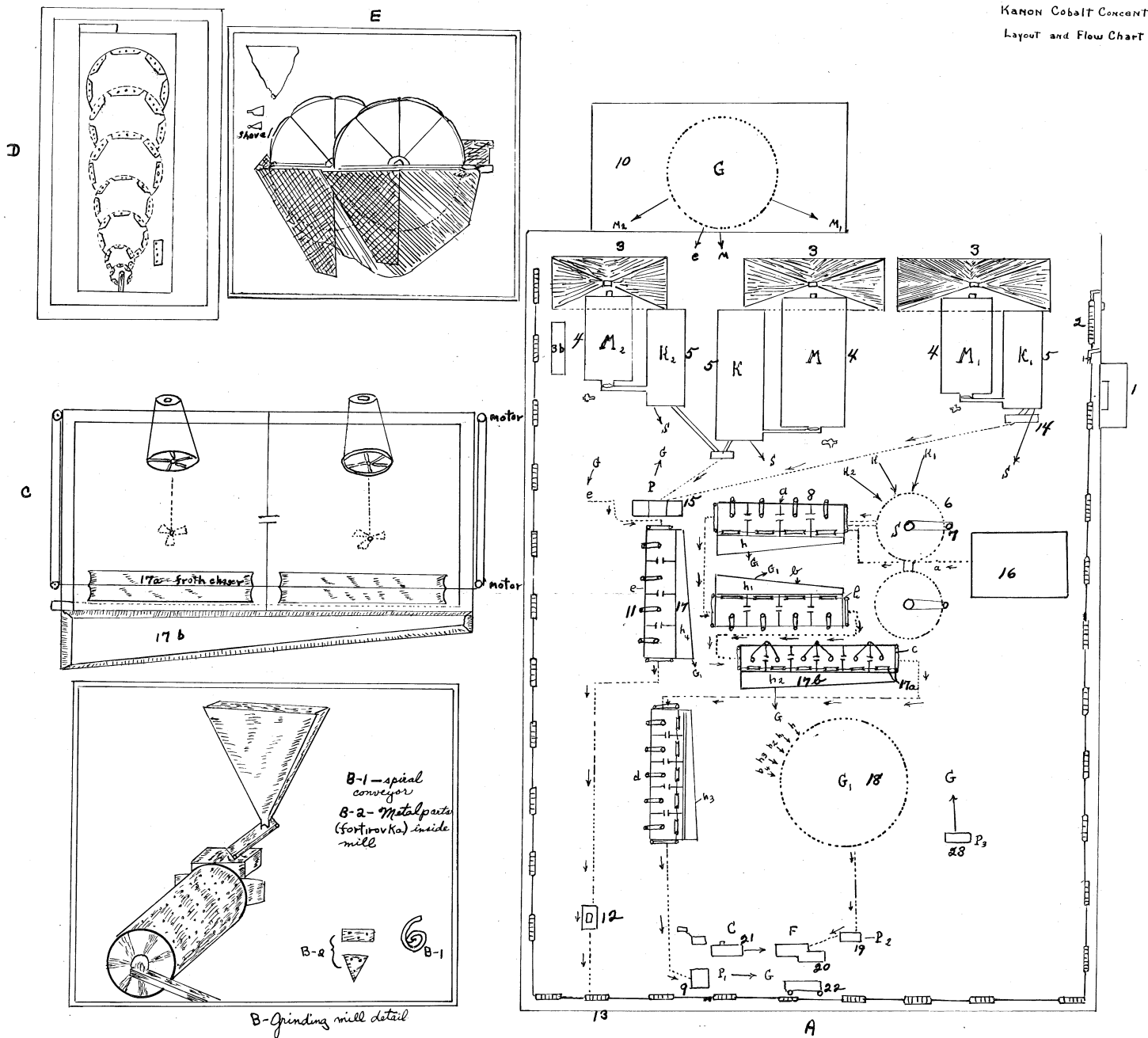
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ATTACHMENT

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KANON Cobalt Concentration Factory
Layout and Flow Chart



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